pennsylvania DEPARTMENT OF ENVIRONMENTAL PROTECTION	**SITE OBSERVATION** C. David Brown 21 Aug 2013	Commonwealth of Pennsylvania Department of Environmental Protection Southeast Regional Office Environmental Cleanup and Brownfields

Site: **Former Sunoco Marcus Hook Refinery** 100 Green Street Marcus Hook, PA 19061		eFACTS Facility ID: 750216	Tank Facility ID: 23-14224
		Incident ID: *multiple*	NIR Date: 6 Oct 2011
Municipality: Marcus Hook Borough	County: Delaware		Location: 39.8115°N, 75.4145°W
Responsible Party: Sunoco, Inc. 10 Industrial Highway, MS4 Lester, PA 19029		Consultant: Langan Engineering & Environmental Svcs 30 S. 17th St., Suite 1300 Philadelphia, PA 19103	
Contact: Jim Oppenheim (610-833-3444)		Contact: Jason Hanna (215-864-0640)	

On 20 Aug 2013 I met with Jim Oppenheim to tour the remediation systems at the former Marcus Hook Refinery. This facility is currently known as the Marcus Hook Industrial Complex, and it is owned by Sunoco Logistics. I arrived at 9:55 am.

We began at the lab building (AOI-3). The LNAPL plume here was identified as gasoline/diesel. Mr. Oppenheim said that the origin was unknown; before the current buildings existed there was a process unit and pipelines in the area. There are presently four active recovery wells, two on the southeast side of the building and two on the northwest side that are not as productive. LNAPL and groundwater discharge to a process sewer that goes to the 15 Plant API separator. The reported total LNAPL recovered is over 100,000 gal; however, Mr. Oppenheim doubted that this figure was accurate. He suggested that amounts may have been over-reported for a period due to incorrect tank gauging. Sunoco will probably add additional collection points to the south (toward the main office building) and to the north. The lab building is vacant and condemned; it will not be occupied again and may be demolished. The adjacent R&D building is presently vacant but could be reoccupied. Oil has been observed in its basement, and there are odors inside the building. The office building is occupied, and parts of it have basements. Mr. Oppenheim said that vapor intrusion had not been evaluated, but it would be in 2014. I mentioned that this should be a priority.

We next drove to the Lube Oil Center (AOI-6). The LNAPL here is from the historic lube plant operations. The two recovery wells have not operated since 2009 and 2011 with no noticeable effect on LNAPL mobility. A sheet pile wall bulkhead was installed next to the river in the 1960s. Mr. Oppenheim said it was ~40–50′ deep, to bedrock. It extends southwest to the inflection in the coastline next to Phillips Island and northeast to the vicinity of the office building. A year or two ago LNAPL was observed in the river near No. 3 Wharf. The product apparently followed an abandoned sewer line from an inland source in the lube plant. A trench and three recovery points were installed, and they have been effective at mitigating the LNAPL. Sunoco Logistics is constructing storage vessels and a processing plant in this area. Mr.

Oppenheim indicated that when this work is complete Sunoco would likely install a new remediation system for the Lube Oil Center because of the proximity of the plume to the river. An initial RIR for AOI-6 was submitted in Sep 2012, and it will be revised.

We proceeded to Phillips Island (AOI-5 and -7). LNAPL is residual oil entrained in filter clay that was landfilled. There are sheet pile walls upslope but not at the water line. Numerous sumps and recovery wells are active both inside and outside the sheet pile walls. LNAPL and groundwater are piped to the 15 Plant separator. We entered the Lower System shed on the northeast side; the pump was operating. The river was not accessible here owing to vegetation. The pump in the Upper System shed on the southwest side was not running; Mr. Oppenheim said it might have been between cycles. Sunoco has recently installed new vaults for the recovery wells on this side. The river here did not show any signs of sheening, though booms were in place as a precaution. The FPL building has a vapor barrier. There are no plans for expansion of the recovery systems.

Next we went to the Middle Creek Interceptor Trench (AOI-5). It consists of a ~15′ trench along the creek and a ~70′ trench perpendicular to it near a pipe rack next to the 15-Plant API separator. There are three recovery wells, and LNAPL is directed to the nearby separator. The system was installed to address LNAPL seepage into Middle Creek. A possible source was historic oily sludge disposal in the vicinity. That waste disposal site was remediated under EPA oversight around 1990. I did not observe any sheening at several locations along the creek. Sunoco has absorbent material and booms present on the creek as a precaution. Mr. Oppenheim said that Sunoco and its contractor inspect the creek every couple weeks.

We continued to the H-5 area to see the H-5 and 12 Tank recovery systems (AOI-4). The LNAPL is described as gasoline/diesel, and the origin and time of release are unknown. It was discovered in 2000 in utility manholes along Post Road. The H-5 system is operating with ~17 recovery wells near the control room and along Post Road. LNAPL and groundwater go to the 15 Plant separator. A SVE system had operated in the past and may be restarted. The remediation system lines are shallow, and it is not winterized, so it is shut down in the colder months. Because odors were detected in the H-5 control room, Sunoco installed a mitigation system to extract vapors from beneath the floor. The control room is still occupied, and I verified that the system blower was operating. The 12 Plant system has several recovery wells in the dike of Tank No. 12 and along Post Road. It has not operated since 2009, but a new discharge line is available that should allow it to restart. Mr. Oppenheim said that Sunoco regards these as interim systems to inhibit LNAPL migration toward the road, but a new system may be proposed to address the source area to the northeast. This month they examined the Verizon manholes along Post Road; this work included short (~5-minute) air samples for lab analysis. Sunoco plans to carry out similar evaluations of the Peco manholes. They also conducted 8-hr indoor air samples in the control room.

The last area was the Green Street Interceptor Trench (AOI-3). Mr. Oppenheim said that LNAPL here might be unrelated to that near the lab building. The lube filter plant was present in this section, and the LNAPL is more likely lube oil. There are six recovery wells with skimmers that remove LNAPL only; it is stored in a 1100-gal holding tank. I mentioned the importance of delineating the AOI-3 LNAPL plumes at and beyond the property boundary. There are potential

vapor intrusion concerns for residential properties on Green Street. Mr. Oppenheim noted that there is an 84″ storm water sewer line on Green Street that may serve as a barrier. The AOI-3 RIR is scheduled for completion in Jul 2014.

Later we talked about storage tank closures and corrective action. We were joined by Paul Braun of Sunoco, Inc. for part of this discussion. Mr. Oppenheim said that they had installed over 100 monitoring wells downgradient of the tanks in AOI-4 and -5 to establish baseline conditions. Most of these tanks are in temporarily out of service status. Sunoco Logistics has not decided whether or not they will remain in service. Although the tanks are registered with Sunoco Logistics, Sunoco, Inc. has retained cleanup liability for existing conditions at the time of sale. Some tanks that are nearing inspection deadlines are having closure assessments. This work is being performed by Stantec. Six tanks were assessed in Jun 2013, and four were found to have soil contamination: Tank Nos. 10A, 201A, 455, and 523. DEP received a phone notification on 4 Jun 2013. Mr. Braun provided written notification forms to Sunoco Logistics, but DEP has not received them. He indicated that Sunoco, Inc. had hired Stantec to conduct the site characterization work, and that it would be completed by Dec 2013 consistent with the corrective action requirements. Sunoco Logistics will submit the SCRs.

I left the facility at 1:55 pm.

C. David Brown P.G. | 8/21/13
Date
Pennsylvania Registered Professional Geologist No. PG005002